EXAMINER'S AMENDMENT

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 11/18/2009 and 1/11/2010 is/are acknowledged. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with John King on 3/12/2010.

The application has been amended as follows:

Claim 39

An apparatus for controlling the movement of a surgical tool to be inserted into the body of a patient, comprising;

a controllable magnetic field source having a first cluster of electromagnet poles and a second cluster of electromagnet poles, said first cluster of poles substantially opposed to said second cluster of poles;

a tool having a distal end responsive to said magnetic field, wherein said distal end comprises a magnetic element positioned longitudinally therein, said magnetic element comprising a proximal pole and a distal pole;

a servo system that controls said location of said distal end of the tool with said controllable magnetic field source by continuously and automatically altering the magnetic field source without any external input from a user;

one or more magnetic field sensors configured to sense a current position of said proximal pole and said distal pole of said magnetic element in said distal end of the tool wherein the current position of the magnetic element is determined based on the magnitude of a resultant force vector (B) generated by the controllable magnetic field source and further based on the direction of the force vector B;

wherein the magnitude of the resultant force vector B is determined from three orthogonal components (Bx, By, Bz) associated with at least six electromagnets wherein the magnitude of the force vector B is given by the equation:

$B = \text{square root}(Bx^2 + By^2 + Bz^2)$,

and wherein the direction of the force vector B is determined with at least three resultant angles between the three orthogonal components with the following equations:

$\alpha = (\cos^{-1} Bx)/B$, $\beta = (\cos^{-1} By)/B$, $\delta = (\cos^{-1} Bz)/B$;

an auxiliary device comprising at least one of the group consisting of: an x-ray device, an ultrasound device, and a radar device, wherein said auxiliary device is configured to obtain

dynamic position data concerning a dynamic position of an organ of a patient corresponding to a desired position of said distal end of the tool;

a system controller that is configured to process said dynamic position data of said organ obtained by said auxiliary device, and said current position of said proximal pole and said distal pole of said distal end of the tool obtained by said magnetic field sensors to compute a position error between said desired position of said distal end of the tool and said current position of said distal end of the tool, such that said system controller computes said position error to compensate for said dynamic position of said organ, and wherein said system controller is further configured to continuously and automatically alter the magnitude and direction of the controllable magnetic field source ~~with~~ using the servo system based on the position error data such that said distal end of the tool continuously and automatically moves substantially in unison with a continuous natural motion of said organ, wherein the controllable magnetic field is altered without any external input from the user; and

a user control device to provide user inputs to said system controller wherein said system controller provides tactile feedback to ~~a~~ the user through said user control device when said position error exceeds a predetermined value while simultaneously compensating for said dynamic position as said distal end of the tool moves substantially in unison with ~~a~~ the continuous natural motion of said organ.

Claim 40

The apparatus of Claim 39, said distal end of the tool comprises one or more piezoelectric rings.

Claim 41

The apparatus of Claim 39, said distal end of the tool comprises one or more piezoelectric rings for providing sensor data to ~~a~~ the system controller.

Claim 47

The apparatus of Claim 39, wherein said one or more sensors comprises one or more temperature sensors paired with the one or more magnetic field sensors.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HELEN NGUYEN whose telephone number is (571)272-8340. The examiner can normally be reached on Monday - Friday, 9 am - 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Max Hindenburg can be reached on 571-272-4726. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. N./
Examiner, Art Unit 3736

/Max Hindenburg/
Supervisory Patent Examiner, Art Unit 3736